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ORGANIZACION NORTEAMERICANA DE PROTECCION A LAS PLANTAS
CANADA UNITED STATES MEXICO

NAPPO Regional Standards for Phytosanitary Measures (RSPM)

RSPM No. 29

**Guidelines for the Petition for Release of Non-*Apis* Pollinating Insects
into NAPPO Countries**

DRAFT

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Review

NAPPO Standards for Phytosanitary Measures are subject to periodic review and amendment. The next review for this Standard is October 2013. A review of any NAPPO Standard may be initiated at any time upon the request of a NAPPO member country.

Endorsement

This Standard was approved by the North American Plant Protection Organization (NAPPO) Executive Committee on October, 2008.

Approved by:

Greg Stubbings
Executive Committee Member
Canada

Paul R. Eggert
Executive Committee Member
United States

Javier Trujillo Arriaga
Executive Committee Member
Mexico

Amendment Record

Amendments to this Standard will be given a consecutive number, dated and filed with the NAPPO Secretariat.

Distribution

This Standard is distributed by the Secretariat of the North American Plant Protection Organization to all NAPPO members, to the FAO IPPC Secretariat, to ICGPP, and to the Administrative Heads of the Regional Plant Protection Organizations (RPPO's). Copies are available upon request to the NAPPO Secretariat and on the NAPPO web page: www.nappo.org.

Introduction

Scope

These guidelines are intended to assist in preparing a petition for the importation and release of pollinating insects. A standardized petition for these organisms will assist reviewers and regulators in assessing the risk associated with the importation, movement and release of pollinating insects. *Apis mellifera* is excluded from the scope of this guideline.

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Definitions, Abbreviations and Acronyms

containment facility	A structure whose purpose is to prevent escape of material held within it, into the environment.
country/region of production	The country / region where the last complete lifecycle of a pollinator occurred prior to shipping.
exotic	Not native to a particular country, ecosystem or ecoarea (applied to organisms intentionally or accidentally introduced as a result of human activities). FAO, 2005.
import permit	Official document authorizing importation of a commodity in accordance with specified phytosanitary requirements. FAO, 2005.
NPPO	National Plant Protection Organization
petition	A formal, written application to a regulatory agency seeking approval to release a pollinator into the environment outside its current or native range.
rearing and packaging materials	The hive, nest box, pollen, food source, plant material, and substrate that the pollinators were produced with, some or all of which may be included in the final product (shipment), including packaging materials .
reference specimens	Individual specimen(s) from a specific population conserved in a reference culture collection and, where possible, in publicly available collection(s). FAO, 2005.
release (into the environment)	Intentional liberation of an organism into the environment. FAO, 2005.
standard operating procedure (SOP)	Codified best laboratory practices for handling pollinators in quarantine or containment.
TAG	Technical Advisory Group

Outline of Requirements

Each NAPPO member country may have different processes for approving the importation, movement and release of pollinating insects. Pollinating insects should only be approved for release after passing through a NAPPO petition process and risk analysis, and/or based on a history of release, as appropriate. The National Plant Protection Organization (NPPO) in the country of release may use its discretion in determining if this petition process should be applied in any particular circumstance.

Background

About three-quarters of the world's flowering plants rely on pollinators to transfer pollen from the male to the female parts of flowers for reproduction. Pollinators are vital to agriculture because most fruit, vegetable, forage, hay and seed crops and other crops are pollinated by animals. Estimating the ecological value of pollinators and pollination and predicting the consequences of their losses are considerably more challenging than estimating their economic value in agriculture. Nevertheless, pollination by animals is essential for maintaining the structure and function of a wide range of natural communities in North America.

In the late 1990's, bee taxonomists started to notice a decline in the abundance and distribution of several bumble bee species in North America. The dramatic decline in wild populations of these species occurred about the time that a disease outbreak was reported in populations of commercially raised *Bombus occidentalis*, which were distributed for greenhouse pollination in western North America.

The movement of bumble bee colonies has been linked to parasite spread in Japan. Researchers have documented the introduction of novel mites with the reintroduction of previously exported bees, indicating that export of natives for rearing and re-importation may lead to novel pest introductions. Furthermore, pathogens such as *Nosema bombi* and *Crithidia bombi* have been shown to occur at higher levels in native populations around greenhouses where commercially produced bumble bees are used for pollination.

Introduction and range expansion of non-native *Bombus terrestris* L. into new habitats has been shown to increase competition among native bee species. In Israel, the introduction of *B. terrestris* was linked to changes in floral plant communities and native bee abundance patterns. More than a century after introduction into New Zealand, *B. terrestris* is now well established and has been definitively shown to compete directly with native megachilid bees in Tasmania. In Japan, *B. terrestris* competes directly with native bumble bee species and declines in *B. hypocrita* populations are documented to coincide with increased abundance of *B. terrestris*.

There are a number of threats facing native pollinating insects, any of which may lead to the decline of these species with consequent indirect impacts on plant communities. The major threats include: competition with exotic pollinators, spread of pests and diseases, new pests and diseases, habitat destruction or alteration, pesticides, invasive species, natural pest or predator population cycles, and climate change. Novel pollinators may interact with

naturalized, but non-invasive exotic plants, increasing seed set, which may lead to increased invasiveness.

General Requirements

Pollinating insects should only be approved for release after passing through a NAPPO petition process and risk analysis, and/or based on a history of release, as appropriate. Petitions should include sufficient information to allow regulators to evaluate the risks associated with the proposed release. Petitions should be prepared for exotic pollinator species, as well as, indigenous pollinator species that are produced in a country or ecosystem outside the area of proposed release.

Petitions should be reviewed by a technical advisory group (TAG) that includes representatives of each of the three NAPPO member countries. The NPPO in the country of release should consider the comments of the TAG in evaluating whether to permit the release. The NPPO in the country of release may use its discretion to approve the release of the organism, issue the permit to import, determine the permit conditions and verify compliance with the permit conditions.

Reference specimens must be deposited in a National Collection in advance of approval for release. The specimens must be clearly labeled, indicating collection locality, latitude and longitude, date of collection, name of collector and any other pertinent information.

Specific Requirements

Each petition should be preceded by a title page, a table of contents and, a summary or abstract (see Appendix 1 for template). A petition to request the release of pollinating insects in NAPPO member countries should include the following information:

1. Proposed Action

- 1.1 Purpose of the release.
- 1.2 Need for the release.
- 1.3 Reasons for choice of this particular pollinator species from this particular country of production.
- 1.4 Specific location of rearing/containment facility and name(s) of qualified personnel operating the facility.
- 1.5 Description of the proposed release(s), including timing and frequency.
- 1.6 Location of proposed release area (including geographic coordinates and a description of the release site).
- 1.7 Methods to be used (e.g., rearing, multiplication, transportation, release).
- 1.8 Measures to be applied to mitigate risk of establishment in environment (e.g. release into screened greenhouses, queen excluders, disposal of expired hives, etc.).
- 1.9 Methods to be used for disposing of any rearing and packing material accompanying a shipment of pollinators.
- 1.10 Agencies and/or individuals that will be involved in the release and monitoring.

2. Target Crop(s)

- 2.1 Taxonomy: scientific names, full classification, synonymy, common names, and sufficient characterization to allow unambiguous recognition.
- 2.2 Economic impact and benefits of the target crop(s).
- 2.3 Distribution of the target crop(s).
- 2.4 Timing of flowering in the target crop(s).
- 2.5 Availability of other pollinators associated with the target crop(s).

3. Pollinator Information

- 3.1 Taxonomy: scientific name, synonymy, common names and name of the taxonomic authority making the identification of the organism.
- 3.2 Methods used to identify the pollinator (e.g., morphological, molecular).
- 3.3 Location of reference specimens.
- 3.4 Natural geographic range, other areas where introduced, and expected attainable range in North America (also habitat preference and climatic requirements).
- 3.5 Host range of pollinator.
- 3.6 Source of the pollinator (laboratory/rearing facility/containment facility, original collection locality, name of collector, and name of identifier).
- 3.7 Pollinator interactions (e.g., parasitoid, pathogen, parasite, competitor, and antagonist)
- 3.8 Life history (including dispersal capability).
- 3.9 Description of how the pollinator pollinates the plant.
- 3.10 History of past use of the pollinator.
- 3.11 Pathogens, parasites, and parasitoids of the pollinator and measures taken to manage the culture.
- 3.12 Standard Operating Procedure stating how the pollinator will be handled in containment.
- 3.13 Other closely related genera, sibling species, or similar species of the pollinator in North America.

4. Region of Production Information

- 4.1 Diseases and parasites of the pollinator in the country of production and their distribution.
- 4.2 Records of importation and environmental release of other pollinator species and their subsequent use in the country of production (species imported, when they were imported, quantities imported, country of export, where they were released).
- 4.3 List of native pollinators of the same genus or of closely-related genera in the country of production.
- 4.4 Current distribution of all con-generic pollinators in the region of production and collection (survey data, including dates of most recent survey).
- 4.5 The Standard Operation Procedures (SOPs) for the insectary in the country of production, including number of generations that the pollinator has been in production.

- 4.6 The NPPO may require that the insectary meets the requirements of RSPM 22, *Guidelines for Construction and Operation of a Containment Facility for Insects and Mites used as Biological Control Agents*, or other requirements specified by the NPPO.

5. Environmental and Economic Impacts of the Proposed Release

- 5.1 Known impact on vertebrates, including humans.
- 5.2 Implications of not releasing the pollinator.
- 5.3 Direct impact of the pollinator on the target crop, non-target crops.
- 5.4 Indirect effects on resident pollinators (e.g., including potential competition with pollinator species that are already present in the target and non-target crop systems).
- 5.5 Indirect effects on other species (e.g., potential impacts on organisms that depend on the target crop and non-target species).
- 5.6 Possible direct and indirect effects on threatened and endangered species in North America.
- 5.7 Proposed actions to prevent undesirable environmental effects.

6 Post-Release Monitoring

The exact location and timing of release(s) must be provided to the regulatory officials. Petitioners should also provide details on the economic and environmental impacts of programs, as soon as practical, after release of exotic insect pollinators. Comparing predicted and observed behavior and performance of pollinators is necessary to validate and improve regulatory systems. Further, monitoring can provide useful information for current programs. For example, additional releases may be suspended if proven ineffective, or if unintended impacts are observed. Therefore, to assist in assessing program impacts, information is requested on plans for post-release monitoring. Failure to report post-release monitoring may impact the issuance of subsequent permits to import.

In designing monitoring plans please note that pre-release baseline measurements of target crops and non-target species provide for better monitoring data and documentation of effects. Also, some effects may take years or decades to manifest while others may not be long lasting. The key elements to monitor are:

- 6.1.1 Verification that risk mitigation measures designed to prevent establishment of the pollinator in the environment are applied consistently and effectively.
- 6.1.2 The establishment and spread of the pollinator.
- 6.1.3 Changes in the distribution and abundance of other pollinator species in the environment over time.
- 6.1.4 Impacts on selected non-target species for which potential impacts are identified (e.g., threatened or endangered species, taxonomically related species and other pollinator species).
- 6.1.5 Changes in pollination levels (fruit and/or seed production) in the target crop and in other selected non-target plant species.

6.1.6 Changes in species diversity and community structure. Monitor the displacement or exclusion of native pollinators, local extinctions, and other direct and indirect effects.

7. References and Acknowledgements

Any key published and unpublished scientific records that support the information contained in the petition should be included.

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Specifications for Petitions

TITLE PAGE

- Title (e.g., ‘Petition for the Release of XXX originating from YYY for the Pollination of ZZZ’)
- Name and address of Petitioner(s)
- Date
- Applicant: Name(s)
- Applicant’s Organization
- Address

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6. Post-Release Monitoring

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6.3 Changes in the distribution and abundance of other pollinator species

6.4 Impacts on selected non-target species

6.5 Changes in pollination levels

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7. References and Acknowledgements

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